

ELECTRONIC GAS

BORON TRICHLORIDE BCl₃

Boron Trichloride is a colorless, corrosive, non-flammable toxic gas with an irritating, acrid odor. It forms dense fumes in humid air. Boron Trichloride is irritating to the mucous membranes. It hydrolyses in moist air to form hydrogen chloride. Its atom is an p-type dopant for epitaxial silicon. It is shipped as a liquefied gas under its own vapor pressure.

Container Information			
CYLINDER SIZE	CONTENTS		
	LB	KG	
			Pressure @ 21.1°C Valve Outlet
			4.4 psig CGA-660 / DISS-634
044	80	36.3	DOT Shipping Description:
016	35	15.9	Boron Trichloride, 2.3, UN 1741 Poison Inhalation Hazard Hazard Zone C
010	22	10.0	DOT Shipping Lables DOT Guide No. CAS Registry No.
			Poison Gas 15 10294-34-5

Specifications		
COMPONENT BORON TRICHLORIDE	VLSI 99.999% min	ELECTRONIC 99.99% min
Carbon Dioxide	< 2 ppm	< 3 ppm
Carbon Monoxide	< 0.5 ppm	< 5 ppm
Chlorine	< 1 ppm	< 1 ppm
Nitrogen	< 4 ppm	< 30 ppm
Oxygen	< 1 ppm	< 10 ppm
THC (as Methane)	< 0.5 ppm	< 1 ppm

SHELF LIFE: 2 years

Physical Properties	
Molecular Weight	117.17
Flammability Limits in air	Non-flammable
Specific Gravity, Gas @ 70°F(21.1°C), 1 atm(Air=1)	4.12
Density, Gas @ 70°F(21.1°C), 1 atm	0.303lbs/ft ³ (4.85g/l)
Density, Liquid @ 0°C,	85.8lbs/ft ³ (1.373g/ml)
Specific Volume, Gas @ 70°F(21.1°C), 1 atm	3.3ft ³ /lb (0.206l/g)
Boiling Point @ 1 atm	54.3°F (12.4°C)
Melting Point @ 1 atm	-161.1°F (-107.3°C)
Critical Temperature	353.8°F (178.8°C)
Toxicity	
TLV-TWA	5 ppm
LC ₅₀	2541 ppm

VLSI Metals Specifications		
ELEMENT	SYMBOL	LIQUID PHASE
Aluminium	Al	< 50
Calcium	Ca	< 10
Chromium	Cr	< 50
Copper	Cu	< 10
Iron	Fe	< 50
Potassium	K	< 10
Nickel	Ni	< 10
Silicon	Si	< 10

*all values in ppbw, lot analysis only